

## Obesity paradox versus frailty syndrome in first-ever ischemic stroke survivors

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## Obesity paradox versus frailty syndrome in first-ever ischemic stroke survivors

Dear editor,

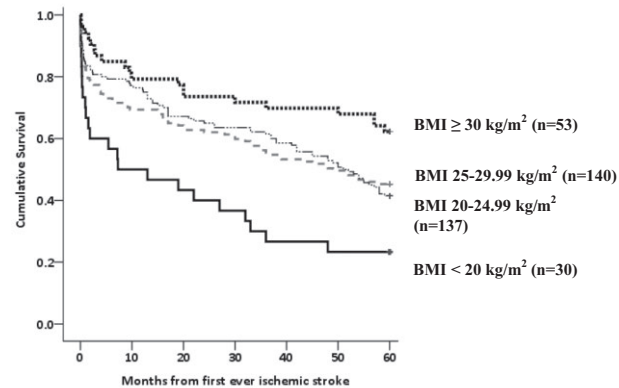
Results of large studies, primarily conducted in North America and Europe, have inferred an association between a body mass index (BMI)  $\geq 25$  kg/m<sup>2</sup> and improved survival after stroke (1,2). This phenomenon, termed the ‘obesity paradox’, may have implications for the management of susceptible groups.

We investigated the implications of this paradox in a group of patients with first-ever ischemic stroke (FES) in Mashhad, Iran. The study cohort consisted of 360 prospectively enrolled patients [mean age:  $65.9 \pm 14.3$  years; 174 (48.3%) females] who were followed for five-years. Patients were placed into four categories based on their admission BMI (Fig. 1). Two hundred (55.6%) patients died during the study period. Survival differed significantly across the four groups (Fig. 1). Patients with BMI  $\geq 30$  kg/m<sup>2</sup> showed higher probability of survival, compared with other groups ( $P < 0.001$ ). Those with BMI  $< 20$  kg/m<sup>2</sup> had the poorest survival rates but were also significantly older than patients with BMI  $> 20$  kg/m<sup>2</sup> (mean age =  $73.3 \pm 16.6$  years;  $P = 0.002$ ).

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**Fig. 1** Kaplan–Meier curves of patients (all followed for five-years) within different groups of BMI at the time of admission for first-ever ischemic stroke (Log-rank tests: BMI  $< 20$  kg/m<sup>2</sup> versus all other levels, all  $P < 0.05$ ; no detectable differences between the other groups).

Our data suggest that in Iranian FES patients with a BMI  $< 20$  kg/m<sup>2</sup> and who may also be at risk of the frailty syndrome, there is a compelling argument for nutritional interventions aimed at improving outcomes. Abnormally low BMI appears to be a predictor of mortality and may serve as an indicator for more proactive and systematic nutritional support in FES survivors. Whether weight reduction in survivors of FES with BMI  $\geq 30$  kg/m<sup>2</sup> is beneficial or harmful will need to be formally tested.

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